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A GRADED COURSE IN SCHOOLROOM GYMNASTICS

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Among the conditions to be dealt with in arranging a course in schoolroom gymnastics the one which stands out most prominently is the faulty posture in sitting and standing which is so characteristic of the untrained school child. Less to be noticed in the lowest grades, except in children whose strength has been depleted by illness, it becomes more and more frequent as the grades advance, until in the highest it is not unusual to find children whose rapid growth and lack of proper development has led to a condition of narrow chest and stooping shoulders which has gone too far ever to be entirely corrected. Besides the menace to health thus endured, these individuals must go through life lacking that advantage in all relations with others which goes with good physical presence. Improvement of posture and carriage then may be considered the prime object of schoolroom gymnastics.

Next to posture in importance comes the relief of congestions in the large abdominal veins where the blood gradually settles during sedentary occupations. Vigorous exercise is the only agency that can be depended on to relieve these congestions, through its call of the blood out into the working muscles and its pumping action on the great veins themselves. All of this effects, moreover, a quickened rhythm of heart, a deeper, fuller respiration, and a generally fresher feeling due to

the more rapid movement of lymph and removal of waste material from the tissues of the body.

Among other results to be accomplished by this work are the training in prompt and accurate response to direction, skill in handling the body through the development of the great neuro-muscular mechanism, and the subordination of the unit to the whole gained through concerted action.

Among these objects the one which differentiates gymnastics from other forms of exercise is the postural one. The physiological changes, the skill in handling the body, and, among adolescent children, the subordination of the individual for the good of the whole, may be reached more easily through games than gymnastics, and certain forms of dancing will accomplish the first two of these results as readily as games. But in neither games nor dancing is much thought given to the training of erect carriage with heads held high and chests full and active. Hence in gymnastic work this is a consideration which should never be lost sight of by the teacher. Her own carriage before the children, if she sets them a good example, will go a long way in helping her to secure results, and many a teacher has attested to the benefits which she herself has received in improved posture and proportions through having felt the necessity of living up to her teachings.

Three principles are most useful to hold in mind when working for correction of posture:

1. Overcorrection of the fault, in order to stretch short muscles and tighten relaxed ones. For instance in the frequent cases of narrow chests the muscles of the front of the chest need to be stretched while those between the shoulder blades should have a tuck taken in them. The children should assume this strongly corrected position before each movement in the lesson, after the few seconds of relaxation which should succeed each movement.

2. The retention of this strongly corrected position during an entire movement, because every exercise tends to make permanent the relations of the body which are held during its performance. An essentially good exercise can have only a bad

effect if taken with poor posture, for it will strengthen the muscles which hold that posture and thus make it even harder to overcome.

3. The education of the sense of posture. If a child stands in incorrect attitude when he makes conscientious effort to straighten up it shows that he does not recognize his own position. Admonition and explanation under these circumstances will do very little good. What is necessary is to mold him into the proper position and let him feel it. This manual correction may need to be done many times before the child will be able to interpret his muscle sensations correctly, but it is the only way in which he can adequately be taught to recognize what he is striving for, and it will finally bring results.

The teacher should carry in her mind a clear picture of the effect she wishes to accomplish by any direction or command, so that deviations from the desirable will strike her attention immediately. According to the prevalence or nature of the error the whole class may receive a few words of suggestion, or while they are standing in the rest position an explanation and illustration may be made, or the manual method may be used in individual cases. All faults cannot be corrected at once, and it should be recognized that the most important ones are those which detract from good carriage in any way—drooping heads and shoulders, flat chests, sway backs, etc. Details of exact direction or extent of movement or relations of hands and feet may properly take a secondary place in favor of the vital importance of posture.

It should also be remembered that the same general objects will be worked for in lesson after lesson, and though perfection may not be gained in any one set of exercises, that is no reason for discouragement or for drilling overtime on those exercises. Succeeding lessons, working for the same results through varied movements, will secure improvement without sacrificing it to monotony. Two weeks is a good period of time for the development of a lesson, introducing part of it at a time.

The manner of giving directions and commands is of great importance. There is a distinct art in modifying the tone of the

voice and its inflections so as to evoke the kind of response desired—brisk movements of the small segments of the body, slow movements of the trunk, quick preliminary action, vigorous muscular work, delicate control of balance, etc. This variety and flexibility in conducting a lesson make it a living thing, and call out the interest and co-operation of the child.

Fresh, cool air should always be freely admitted to the room at the time of the gymnastic lesson. This can best be done by opening windows, with due regard for cold drafts. In buildings with ventilating systems the objections of the janitor can usually be overcome by opening all the windows at once.

In this course the method of work will vary for different ages. For children under eight years, or roughly for the first and second grades, the method recommended is the gymnastic story play, with its appeal to the dramatic interest, its absence of abstract terms, its mingling of spontaneity with directed work. In the other grades gymnastic exercises by command will be used, with their appeal to the interest in military uniformity and precision in the younger children, and to self-improvement among the older ones, where the introduction of simple dance steps will also bring in an aesthetic interest.

In all grades a short drill in sitting posture should preface the lesson. At the direction, "Straight sitting position!" for the little people, and the command, "Attention!" for those who have reached the dignity of gymnastics, an erect posture is assumed, the feet flat on the floor, the hips pushed well back against the chair back, the upper part of the trunk poised sufficiently far forward so that it is easy to hold the required posture of active chest, straight neck, and high head. The arms should hang straight down at the sides. At "Rest!" the children lean back against the chairbacks and relax. This alternation of position should be repeated several times, with care to get really good posture.

The story play and the gymnastics by command are so different in method of development that they will be considered separately.

THE GYMNASTIC STORY PLAY

The gymnastic story play may be considered as an informal method of dealing with formal material—gymnastics—or a formal method of dealing with informal material—the story. Briefly, it consists of a series of something like six exercises grouped about a simple story of childish activities. The story must be one which will appeal to the fundamental interest of the child in order to be enjoyed by him during a series of lessons, and it must be capable of dramatization through exercises which conform to the requirements of a good gymnastic lesson.

As far as possible the themes of the stories may well be chosen with relation to the season of the year, as "The Picnic" in May, or to the holidays which are approaching, as in the case of "Christmas Morning" in December and the "Soldier Play," which comes in the same month as Memorial Day. The interest in the "Christmas Morning" grows more and more lively throughout the month of December, although it will fail to call forth more than passive interest after the first of January. In the same way the "Valentine's Day" story will be the center of great enthusiasm for the two or three weeks ending February 14, after which it falls flat.

The set of story plays which will be suggested in this outline are adapted to children who live in a temperate climate and who know something of both the city and the country. If there are winter stories which will not appeal to southern children or country stories which will not appeal to city children there is abundant opportunity for teachers to work out new story plays to fit such conditions, always remembering the two main requirements—a story which shall be simple and fundamental in its interest and exercises which make up a good gymnastic lesson.

The exercises should be about six in number, and should always give representation to the following classes of movements: postural correction, arm and shoulder girdle, trunk, leg, respiratory, and running or jumping. Two classes of movements are not infrequently found combined in the same exercise, as in kneeling and picking flowers, where the leg and trunk muscles are used, or in rowing a boat, in which trunk and arm muscles

are used and a strong corrective element introduced, or in climbing a ladder, where arms and legs work together. There is a decided advantage in these combination movements for they give opportunity for more vigorous and widespread exercise than is obtained when pure types of movements are used of such simplicity that they are suitable for little children, and they make possible the use of perfectly natural neuro-muscular co-ordinations. The combination of leg and trunk exercises with other classes is especially desirable since this is the age at which the development of the large fundamental groups of leg and trunk muscles is going on rapidly and locomotion for its own enjoyment forms a large part of all play.

The order of the exercises must largely be determined by the story, though it is usually possible so to arrange a story that the more vigorous exercises come toward the end, and usually it will be found that the respiratory exercise occurs at or near the end, following a more vigorous exercise. It will be noticed that the respiratory movements are always taken with inhalation through the nose and exhalation through the mouth. This is for the purpose of avoiding confusion on the part of the child, who at this age finds it difficult to discriminate between the two acts if the mouth is kept closed. With the aid of this little device the teacher can be sure of her results.

The method of presenting and conducting the story play must be carefully considered, for it must be very gently and skilfully guided between the Scylla of a formal gymnastic lesson on the one hand and the Charybdis of mere entertainment for the children on the other. There must be a delicate balance which will permit careful correction of posture without focusing the child's attention on his anatomy, concerted response to direction without rigidity, acquirement of the habit of rhythm without conscious drill, and on the other hand spontaneity of suggestion without waste of time, freedom of expression without loss of attention to the teacher's directions, and enjoyment without disorder.

It must always be remembered that the gymnastic story play is fitted to secure postural correction and improvement just as

surely as is a gymnastic lesson, and to this end a strong posture must be called for before each movement and must prevail during its performance. It is well to use the word, "Position!" immediately before each movement. The response should be the quick assumption of the erect standing position, which should mean essentially for little children heads high, chests active, and weight evenly balanced on the feet. A little child usually gives his chest credit for occupying the entire front of his body, and abdomen as well as chest is likely to become round and prominent in his efforts for good posture. The suggestion, "Big up here" (with teacher's hand on chest), and "Little down here" (with her hand on abdomen) is helpful in correcting this error in anatomical conception. "Tall heads" and "Stand tall" are good admonitions to swear by. The recognition of a fine round chest by a friendly tap upon it will often result in a large crop of them.

There will be children who are not reached by any of these suggestions, however, children with cramped, weak chests and prominent shoulder blades who are unable of their own volition to assume the proper attitude. These the teacher must help by laying her hands on the shoulders, and with her thumbs on the prominent shoulder blades and fingers over the front of the shoulder joints she must roll the offending shoulders up and off the chest, at the same time forcing the chest forward with her thumbs into its proper place. Gradually a child so helped acquires through the training of his muscle sense the ability to correct himself.

These more or less anatomical methods of correction are necessary in obtaining good starting posture, but during the performance of the exercises abstract suggestions are usually out of place. Almost always a suggestion in line with the dramatization of the story will bring the desired result. If in pushing a baby carriage the children lean forward and cramp the chest it is well to remind them that this is a full-sized baby carriage, and that they may even have to reach up to grasp the handle, or that surely only strong-looking children would be allowed by the mother to take the baby out riding. If in coasting down hill the

children's backs show a tendency to hump it is only necessary to pretend that a race is going on and that the children with the straightest backs will reach the foot of the hill first, and every child will immediately make an effort to have that straightest back. And so on, *ad infinitum*.

In the same way unnecessary noise in running or jumping can usually be controlled by dramatic suggestion. If we find that the feet are heavy in the hopping in the story "Birds Learning to Fly" we do not try to see how lightly the *children* can hop, but we remember that little birds *never* make a noise hopping on the limb of a tree, and straightway most concentrated effort is made for light feet. The suggestion that the running is being done on the grass or the snow conduces to easy elimination of noise in that exercise. In many plays the exhalation effort in the respiratory exercise is accompanied by a tone, or a whistle, or a hissing sound, and, being rather fascinating, the sound tends to be prolonged, but suggestions correlating the sound with the story will serve to control this exuberance.

It is well to take two lessons for the introduction of a new gymnastic story play, so that the children may not become tired by being given so much new material in so short a time. Every teacher's individuality will show in her method of introducing the lesson, but certain suggestions are appropriate. After setting a background in which to place the story it is well to take up at one time only that part of it which refers to one movement. Telling the whole story at once is likely to result in too much talking and too little exercise, and often tires the children. It should be unnecessary to emphasize the need of a strong, vigorous posture on the part of the teacher throughout the lesson (not to speak of the rest of the session), for admonition without example does not sink in very deeply. She should study out the possibilities for correction of posture and for vigor of exercise in each movement and should be careful to illustrate it accurately to the children. Large arm and leg movements with free use of shoulder and hip joints should be encouraged; small hand and foot exercises have little value.

At first the teacher will find it necessary to take the move-

ments with the children. As they know the play better, however, she should work toward developing an independent response from them both for their own sake and because it will give her a better opportunity to move among them making corrections.

Between the movements there should be relaxation. If the child naturally relaxes, as is usually the case, nothing need be said about it, but if the movement has keyed him up to military erectness a direction for resting will be necessary. "Rest position" is convenient, and means that the child stands at ease with feet in the stride position, thus usually insuring an even distribution of weight between them.

It goes without saying that a childlike spirit should pervade the giving of the lesson, both its story and its action. The teacher's voice, by its brightness and the use of the staccato in directions which call for swift response will bring out the quickness of motion which is characteristic of children. Rising from a squatting or a bending to an erect standing position should always be done briskly, both because it brings better posture than a slow action and because it usually also brings a smile to the face of the child; the bright staccato use of the direction "Up!" will usually accomplish this result.

If the children are performing their movements vigorously, using large motions and getting a corrective effect, it is not necessary that there should be uniformity in the small details of exact direction, or exact extent, of motion, or position of feet, or of an arm which is perhaps not being used at the time. Such details are better passed by lightly. In rhythmic exercises such as running in place, the teacher should set the time for the class, and this should be done before the direction is given at all in order that the children may feel the rhythm before starting to express it. A few seconds spent in preliminary beating of time will often save confusion later. The fact that the child's natural rhythm is faster than the adult's should always be remembered.

It is not worth while to spend much time in training little children to discriminate between left and right. It is such a difficult mental process for them that it makes the action of the play unwarrantably slow. On the other hand much may be

done toward educating them in the appreciation of left and right by using the terms and indicating by a gesture which side is meant.

The length of time a lesson should occupy is about ten minutes. Less will make it difficult to obtain results in both posture and vigor of exercise; more may result in a loss of fresh, concentrated attention. Ten minutes wisely used is sufficient to give the child a strong impulse in the direction of better carriage, so that he is proud to have it and glad to respond to suggestions concerning it which will of course be necessary at other times of day.

There are usually several good opportunities in each story for the children to make suggestions which will help keep the whole plot vital for them. They like to tell what kinds of flowers they are picking, or what the birds see on the ground, or what the firemen save from the burning building. Since there is only ten minutes' time for everything these contributions must be sought and given without wasting time, an error which it would be easy to fall into. It serves the double purpose of saving time and emphasizing posture to call on particular children for suggestions because they look so tall and strong that you think they would give good ones. Tall and strong posture thus comes to take the place of the wild waving of hands if children wish to voice their ideas. The question, "How many" have accomplished this or that will usually bring response from the whole class, to their own satisfaction and with very little expenditure of time.

Most of the story plays may be used with advantage for about a month, especially if on one day of the week, preferably Wednesday, a game be substituted for the story play. In this way a story play is not repeated on consecutive days sufficiently to risk monotony, and, which is quite as important, a regular period of supervised play is insured of sufficient length for a real game. Thus the children are given occasion for the freedom of expression of developing tendencies and characteristics which is best afforded by play and the teacher has a valuable opportunity for studying and guiding those tendencies and

characteristics. Shorter game periods, by the way, should be introduced between lessons at other times of day.

During September and June I would not use anything even so little formal as the gymnastic story play. In September the children are having difficulty in adapting themselves to the confinement of indoor life after the vacation, and the gymnastic period is best used for supervised *outdoor* games. In June the strain of the long indoor year is showing in increasing restlessness and drooping, and it is good practice to drop gymnastic stories and to return again to outdoor games.

Following are two gymnastic story plays suggested for autumn:

Autumn in the Woods

FOR FIRST GRADE

(Adapted from *Gymnastic Stories and Plays*, by Rebecca Stoneroad, M.D.; D. C. Heath & Co.)

Story.—The children go out to play in the woods. First they sit down and pretend that they are the little flowers that go to sleep every night and are awakened by the sunlight in the morning, or perhaps that Jack Frost has nipped them and made them close their eyes. The leaves are falling gently and the children catch great basketfuls and throw them over their heads. They reach high for especially pretty leaves and then scatter them, making a leaf-carpet about their feet. Now they kneel, gather great armfuls of the leaves, rise, and toss them in this direction or that. Now they are ready for a run. And they follow their leader in and out among the trees, and they pant breathlessly afterward.

Exercises:

1. Going to sleep like sleepy flowers.
   Purpose: Practice in straight sitting position.
   Starting position: Straight sitting position.
   Signals: A. Go to sleep, or Jack Frost comes.
   Child assumes rest sitting position with head relaxed and dropped on chest, eyes shut.
   B. Morning! or Wake up! or Sunshine!
   Child instantly assumes straight sitting position with eyes open.
2. Catching leaves in baskets and throwing them over the head.
   Purpose: Correction of chest and upper spine.
   Starting position: Standing position.

Signals: A. Make your baskets.
Clasp hands in front.
B. Catch.
Raise arms to height of shoulders, bending elbows so that arms circumscribe a circular opening.
C. Toss.
Swing arms overhead without unclasping hands.

3. Reaching up and making the leaves fall.
Purpose: Correction of chest and upper spine.
Signals: A. Reach.
Swing arms high over head and look up.
B. Scatter.
Pretend to scatter leaves softly on ground.

4. Gathering armfuls of fallen leaves and throwing them about.
Purpose: Back and leg exercise.
Signals: A. On left (right) knee—down.
Kneel with body erect.
B. Gather.
Bend forward and sweep arms through imaginary leaves, gathering a quantity.
C. Straight up.
Straight kneeling position, arms still clasped about leaves.
D. Stand.
Quickly regain straight standing position.
E. Throw.
Pretend to toss leaves in any direction suggested.

5. Running among trees.
Purpose: General exercise.
Signal: Run.
One row follows another around room.

6. Panting after the run.
Purpose: Deep breathing.
Signals: A. Breathe in.
Through the nose.
B. Breathe out.
Through the mouth.

Suggestions for holding interest:

Mention of a recent frost.
Get full baskets before throwing leaves.
Ask for colors and kinds of leaves. The children who look up the straightest will probably see the prettiest ones.
Ask for suggestions as to where they shall throw leaves—through a window, to the teacher, to each other, etc.

An Automobile Ride

for second grade

Story.—The uncle of one of the children takes the whole class out to the country in his automobile for a ride. They help him crank the automobile and when they reach the country they climb a high rail fence to get into a field where they see a pump. There they pump water for each other, and later they push each other in a rope swing in one of the trees, going high up in the air. In the grass they find thistledown and blow it far and wide. As it begins to grow dark they see fireflies twinkling, and running back to the automobile they try to catch them.

Exercises:

1. Cranking the automobile.
   Purpose: Trunk and arm exercise.
   Signals: A. With left (right) hand take hold of crank.
   Bend forward at hip joint, spine straight, and grasp imaginary crank.
   B. Crank it.
   Pull up strongly with arm, shoulder, and back, swinging arm in outward circle.

2. Climbing the fence.
   Purpose: Leg and arm exercise.
   Signals: A. Left.
   Lift left hand high and bend up left knee.
   B. Right.
   Same on right side.
   C. Left.
   D. Right.
   E. Jump.
   Jump forward, landing softly on toes.

3. Pumping water.
   Purpose: Trunk and arm exercise.
   Signals: A. Hands on pump handle.
   Raise bent elbows to shoulder height, hands in front of chest.
   B. Push.
   Bend trunk forward at hip joint, spine straight, arms pushed straight down.
   C. Pull.
   Raise body to erect position and bend arms up again.

4. Swinging each other.
   Purpose: Arms and correction of chest.

Signals: A. Pull.
Raise both arms well back overhead, holding imaginary swing seat.
B. Push.
Push arms vigorously forward and upward, at the same time stepping forward with one (either) foot.

5. Blowing thistledown.
Purpose: Deep breathing.
Signals: A. Toss up the thistledown.
Make a tossing motion.
B. Breathe.
Inhale.
C. Blow.
Exhale, blowing breath upward.

6. Catching fireflies.
Purpose: General exercise.
Signal: Ready—run.
Each row runs round the room catching imaginary fireflies with hands.

Suggestions for holding interest:
Whose uncle, whose field, whose turn to swing?

RETARDATION IN THE SCHOOLS AND SOME OF THE CAUSES

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The following material is the result of a careful study of the first eight grades in the schools of a town having a population of about 2,200.

There are enrolled in these grades 557 pupils, a number of whom have recently moved into the town, while others moved away from the town before this investigation was made. It was, however, possible to obtain accurate data concerning about 500 of the pupils enrolled during the year. These 500 were studied with a view of obtaining the number of years each was retarded, the particular grade or grades in which the retardation occurred, and some of the causes of the retardation.

In determining causes, only home conditions and attendance were considered.

METHOD

I. Lists of all pupils in each grade were prepared, together with the age last September and the age when first entering school.

Using Ayres's method of supposing a child retarded who has not been promoted each year, the number of years of retardation was determined by subtracting the age at which the pupil entered school from the age in September.

The figures showing the number of years of retardation for each pupil were corrected at the end of the school year, for those who were not promoted at the close of school.

The pupils who were shown by the above method to be retarded were asked to name the grades in which they had spent more than one year.

The results obtained proving untrustworthy, it was necessary to seek additional information in order to discover in what grades the retardation occurred.

As nearly all of the grade teachers have been teaching in the town as long as their pupils have been in school, the teachers were able to correct the data given by the pupils. In doubtful cases the records were also consulted. Nearly all of the cases of retardation and the grades in which they occurred were accounted for in this way.

II. The percentage of attendance of each child during the whole number of years he has been in school was determined by taking the average of his percentages of attendance for the several years.

On account of a large floating school population in the town, the number of pupils for whom the attendance figures could be determined was less than the number for whom retardation figures were determined.

III. In studying home conditions three determining factors were considered: (1) financial advantages of the home; (2) educational advantages of the home; (3) moral atmosphere of the home.

In studying these conditions the following grading was used:

Financial:

A=considerable property
B=moderate means
C=poor

Educational:

A=special school advantages
B=common school education with limited advantages gained from reading and travel
C=educational advantages limited to ability to read and write

Moral:

A=all that could be expected
B=fair—not all that could be expected
C=influence not for good

Two lists of the pupils in each room were prepared: one was given to the teacher now in charge of these pupils and the other to the teacher who had the same pupils last year. Each of these teachers was requested to grade the home conditions of each pupil according to the above-named system of grading. In this way two opinions concerning the home conditions of each child were secured. In this grading scheme one teacher did not know the opinions of the other teacher who was grading the same list of pupils.

The opinions of the two teachers in each case coincided to rather a surprising degree. Out of 1,212 judgments, not counting the first grade, for which only one list was prepared, there were 113 judgments which differed by one point and 6 judgments which differed by two points from the corresponding judgments of the same lists. Where these opinions were much at variance and in doubtful cases, outside information was sought.

The opinions of the teachers seemed even more trustworthy on account of the fact that most of them are teaching in their home town, where they have lived since childhood.

RESULTS

Table I shows the number of years of retardation for the pupils in the different grades, and the grades in which the retardation occurred. By dividing the total years of retardation in each grade by the number of pupils in the grade for which this total of years of retardation is determined, the average number of years of retardation is determined.

The curve in Chart 1 is a graphical representation of the average number of years of retardation for the pupils in the different grades. The general direction of the curve is upward, with two sudden drops in Grade 3A and the sixth grade. This may mean that these two grades are composed of pupils of more than ordinary ability. It may also mean that the fifth grade is the point at which most of the retarded pupils leave school. There is then a sudden rise in the eighth grade to be accounted for.

The facts in the case are, Grade 3A is an unusually good grade, while this cannot be said of the eighth grade. The eighth grade contains a number of retarded pupils who did not drop out at the usual place. It is also noticeable from the table that most pupils who are retarded in the lower grades leave school before reaching the higher grades.

Before explaining Table II, it may be well to explain the significance of Grades 3A and 3B. Except during the past year, it has been customary for most pupils to spend two years in the third grade. With the exception of a few of the very brightest, the second-grade pupils have been promoted to Grade 3B, and after

TABLE I

DISTRIBUTION OF YEARS OF RETARDATION WHILE PUPILS WERE IN DIFFERENT GRADES

Grade	While in Grade										Total Years of Retardation	Number of Pupils in Grade	Average Number of Years of Retardation
	1	2	3B	3A	4	5	6	7	8	Unknown			
1.....	47									0	47	95	.49½
2.....	27	6								0	33	53	.62
3B.....	28	15	39							0	82	55	1.49
3A.....	22½	2	41	2						0	67½	59	1.14
4.....	13	11	34	10	23					13	104	65	1.6
5.....	13	6	37	6	6	21				9	98	61	1.6
6.....	6	5	18	6	3	1	2			4	45	43	1.05
7.....	1	4	9	7	5	4	3	11		4	48	43	1.11
8.....	1	0	8	1	0	1	11	4	11	4	41	24	1.71
Total.....	158½	49	186	32	37	27	16	15	11	34	565½	498	1.13

This table counts 1 year in Grade 3B as retardation.

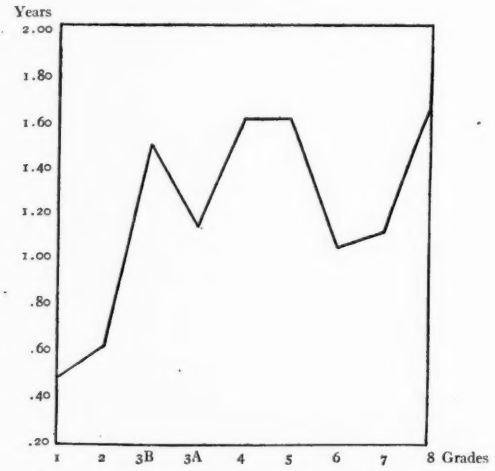

CHART 1.—Curve showing average number of years' retardation by pupils in different grades, counting 1 year in Grade 3B as retardation.

spending a full year in this grade they have been promoted to Grade 3A. In consequence, most of the pupils in the school above Grade 3B have spent nine years in the eight grades.

TABLE II

DISTRIBUTION OF YEARS OF RETARDATION WHILE PUPILS WERE IN DIFFERENT GRADES

Grade	While in Grade									Total Years of Retardation	Number of Pupils in Grade	Average Number of Years of Retardation for Each Grade
	1	2	3B	3A	4	5	6	7	8			
1	47									47	95	.494
2	27	6								33	53	.622
3B	28	15	5							48	55	.872
3A	22½	2	2	2						28½	59	.483
4	13	11	0	9	22					55	65	.846
5	13	6	2	6	6	17				50	61	.819
6	6	5	0	6	3	1	2			23	43	.534
7	1	4	0	8	5	4	3	11		36	43	.837
8	1	0	0	1	0	1	11	4	7	25	24	1.04
Total	158½	49	9	32	36	23	16	15	7	345½	498	.609

This table does not count 1 year in Grade 3B as retardation.

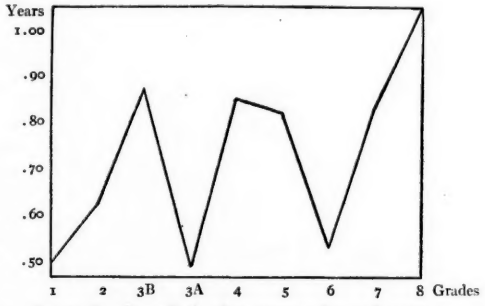

CHART 2.—Curve showing relation between grades and average number of years' retardation of pupils. This curve does not count 1 year in Grade 3B as retardation.

Table II shows the same relations as Table I except that in Table II one year spent in grade 3B is not counted as retardation, as is the case in Table I. Since most children, regardless of ability, were

required to spend two years in the third grade, it is evident that Table II, with the accompanying Chart 2, gives a nearer just representation of the average number of years pupils in the different grades are retarded.

TABLES III AND IV

DISTRIBUTION OF PUPILS BY GRADES AND AGES

Age	Grades									Total	
	1	2	3B	3A	4	5	6	7	8		
6	79	6	0	0	0	0	0	0	0	85	
7	21	15	5	7	0	0	0	0	0	48	
8	11	13	13	16	5	0	0	0	0	58	
9	3	10	12	22	14	1	0	0	0	62	
10	1	3	9	12	15	11	4	0	0	55	
11	0	1	3	6	12	17	13	3	0	55	
12	0	0	2	0	9	15	11	9	0	46	
13	0	0	5	2	6	10	8	15	4	50	
14	0	1	0	0	3	5	7	12	13	41	
15	0	0	0	0	1	0	1	5	4	11	
16	0	0	0	0	0	0	0	1	5	6	
17	0	0	0	0	0	0	0	0	1	1	
18	0	0	0	0	0	0	0	0	0	0	
Total	115	49	49	65	65	59	44	45	27	518	
Above normal age	36	28	31	42	46	47	27	33	23	313	Table III figures for light line
Percentage above normal	31.3	57.1	63.2	64.6	70.7	79.6	61.3	73.3	85.1	60.4	Table III figures for light line
Above normal age	36	28	31	20	31	30	16	18	10	220	Table IV figures for heavy line
Percentage above normal	31.3	57.1	63.2	30.7	47.6	50.8	36.3	40	37	40.2	Table IV figures for heavy line

The light rule considers Grade 3B as retardation; the heavy rule does not consider Grade 3B as retardation.

Tables III and IV show the distribution of pupils in the grades according to age. Inasmuch as most pupils in this school enter at the age of six, the following would be the minimum age for pupils not retarded:

Grade 1..... 6 years
Grade 2..... 7 years
Grade 3B..... 8 years
Grade 3A..... 9 years
Grade 4.....10 years
Grade 5.....11 years
Grade 6.....12 years
Grade 7.....13 years
Grade 8.....14 years

If one year spent in grade 3B is to be counted as retardation, the following becomes the list of ages for the different grades:

Grade 1..... 6 years
Grade 2..... 7 years
Grade 3..... 8 years
Grade 4..... 9 years
Grade 5.....10 years
Grade 6.....11 years
Grade 7.....12 years
Grade 8.....13 years

In Tables III and IV the light line would be the mark below which retardation is counted if the latter table is taken as a guide. The heavy line would be the mark of retardation if the former table is taken as the standard. Figures showing the percentage of retardation in each grade are given in the lower part of the table.

These results are further illustrated in Charts 3 and 4. The full light columns represent the number of pupils in each grade, the shaded portion represents the number who are retarded.

It is thus shown that, with the exception of the first grade, the percentage of retardation increases until the fifth grade is reached. From this point the percentage of retardation does not increase until the eighth grade is reached. This would show again that pupils retarded early in the grades drop out of school about the time they reach the fifth grade. The eighth grade exception has already been noted.

Tables V and VI show the percentages of retardation in the different grades as determined independently of the method used by Ayres in his "Laggards in Our Schools." The figures in these tables were determined by questioning the pupils and the teachers, and searching what records could be found in order to discover

how much each individual child had been retarded. In the main, this was done by subtracting the age on entering school from the age last September. The results are believed to be correct because practically all of the years represented by the differences in ages in September and at the time when the child starts to school were

TABLE V

TABLE SHOWING TOTAL ENROLMENT AND RETARDATION IN DIFFERENT GRADES, COUNTING GRADE 3B AS RETARDATION

Grade	Number Enrolled	Number Retarded	Percentage of Retardation
1	95	49	51
2	53	21	40
3B	55	40	73
3A	59	45	76
4	65	49	75
5	61	50	82
6	43	28	65
7	43	28	65
8	24	20	83
Total	498	330	66.2

TABLE VI

TABLE SHOWING TOTAL ENROLMENT AND RETARDATION IN DIFFERENT GRADES, NOT COUNTING 3B AS RETARDATION

Grade	Number Enrolled	Number Retarded	Percentage of Retardation
1	95	49	51
2	53	21	40
3B	55	22	40
3A	59	25	42
4	65	34	52
5	61	35	57
6	43	18	42
7	43	23	53
8	24	16	67
Total	498	243	48.7

accounted for by the pupils, the teacher, or the records. Following is a comparison between the two methods.

By Ayres's Method	Percentage of Retardation for Whole School
Counting 1 year in 3B as retardation	60.4
Not counting 1 year in 3B as retardation	40.2

By Actual Determination of Individual Cases	Percentage of Retardation for Whole School
Counting 1 year in 3B as retardation	66.2
Not counting 1 year in 3B as retardation	48.7

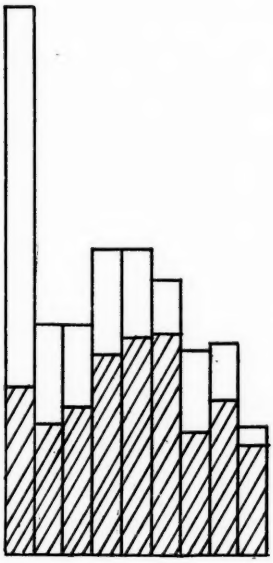

Chart 3

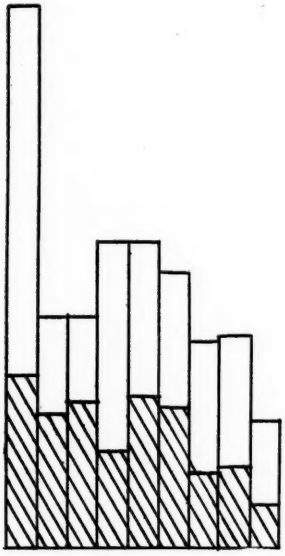

Chart 4

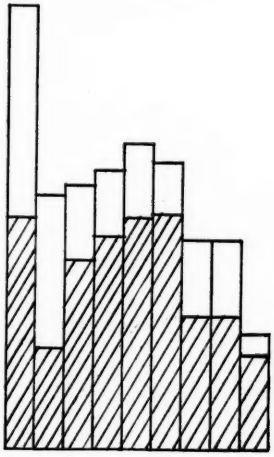

Chart 5

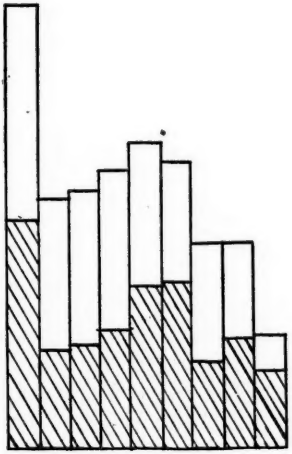

Chart 6

Charts 3 and 5 count 1 year spent in Grade 3B as retardation.
Charts 4 and 6 do not count 1 year in Grade 3B as retardation.
Charts 3 and 4 are based on Ayres's method.
Charts 5 and 6 are based on the method of individual study.

Charts 3, 4, 5, 6 represent the proportion of pupils in the different grades who have been retarded. The full-height columns represent the number of pupils in the different grades. The cross-hatched portions represent the number of pupils who have been retarded.

Ayres's method is thus shown to give approximately the same results as the method of studying individual cases.

Table VII shows the relation between retardation and the percentages of attendance for the whole time pupils have been in school.

In Chart 7 the abscissa represents the percentages of attendance, while the ordinate represents the percentages of retardation. Beginning with the level between 90 and 100 per cent on the left,

TABLE VII

TABLE SHOWING THE NUMBER OF CASES OF RETARDATION FOR DIFFERENT PERCENTAGES OF ATTENDANCE

Grade	Percentage of Attendance and Retardation													
	95–100		100–90		90–80		80–70		70–60		60–50		Below 50	
	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded
1	9	3	25	11	22	13	17	6	6	6	5	2	11	9
2	7	2	16	3	10	3	7	4	3	3	1	1	1	1
3B	10	9	19	17	11	7	9	8	4	4	1	1	1	1
3A	15	13	28	21	17	14	5	4	3	3	1	1	0	0
4	18	12	33	25	8	7	7	7	3	3	0	0	0	0
5	16	12	32	25	7	7	8	8	0	0	0	0	0	0
6	16	9	27	17	9	6	0	0	0	0	0	0	0	0
7	11	4	24	12	9	9	2	2	0	0	0	0	0	0
8	11	9	16	13	5	4	2	2	0	0	0	0	0	0
Total	113	73	220	144	98	70	57	41	19	19	8	5	13	11
Percentage of retardation		64½		65½		71½		72		100		62½		84½

In tables VII, IX, X, XI, XII, in the double columns of figures the first column contains the total number of pupils having the condition named as the heading of the double column. The second column in each double column contains the number of such pupils who have been retarded.

the curve shows an increase in percentage of retardation as the percentage of attendance decreases. Through the different intervals 90–100, 80–90, 70–80, 60–70, the percentage of retardation rises. Strange to say, the curve is lower between 50 per cent and 60 per cent of attendance and below 50 per cent of attendance than between 60 per cent and 70 per cent.

By carefully examining Table VII, it is seen that all of the cases of attendance below 60 per cent occur in the first three grades. All of these pupils except five in the first grade are retarded. These

five were promoted from the first grade to the second grade in spite of low attendance. There being few cases showing a percentage of attendance below 60 per cent, these five not retarded make the percentage of retardation low. However, with the exception of the interval 60 per cent to 70 per cent, the curve remains at about the same level from 100 per cent back to 50 per cent of attendance. This would mean that the percentage of retardation

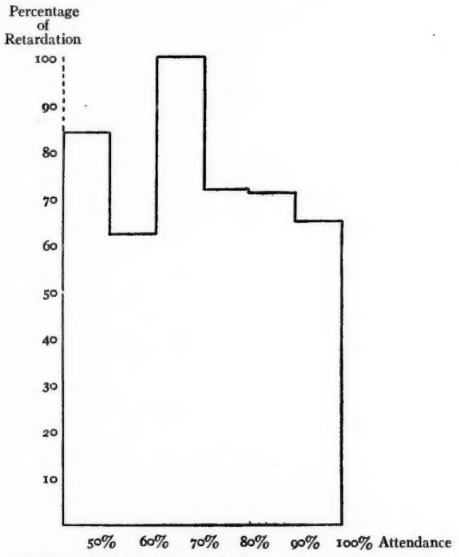

CHART 7.—Relation between retardation and attendance, based on number of cases of retardation.

is about the same for all pupils whose attendance is irregular. This curve deals only with cases of retardation and not with the number of years of retardation. The pupils whose percentage of attendance is between 90 per cent and 100 per cent may have an average of only one year of retardation, while those between 50 per cent and 60 per cent may have an average retardation of several years.

Table VIII and the accompanying Chart 8 show this to be true. In this table the average number of years of retardation for the

TABLE VIII

TOTAL NUMBER OF YEARS OF RETARDATION IN EACH GRADE FOR THE FOLLOWING PERCENTAGES OF ATTENDANCE

Total Years Retardation

Grade	90-100%	80-90%	70-80%	60-70%	50-60%	Below 50%
1	11	10	5½	9	2	11
2	11	7	7	3	2	1
3B	23	12	21	8	6	3
3A	29	23	8	5	2	0
4	45	8	20	11	0	0
5	33	22	21	0	0	0
6	27	11	0	0	0	0
7	17	21	3	0	0	0
8	26	9	6	0	0	0
Total retardation in years	222	123	91½	36	12	15
Total number having attendance indicated	220	98	57	19	8	13
Average years of retardation	1.00†	1.25	1.60	1.89	1.50	1.15

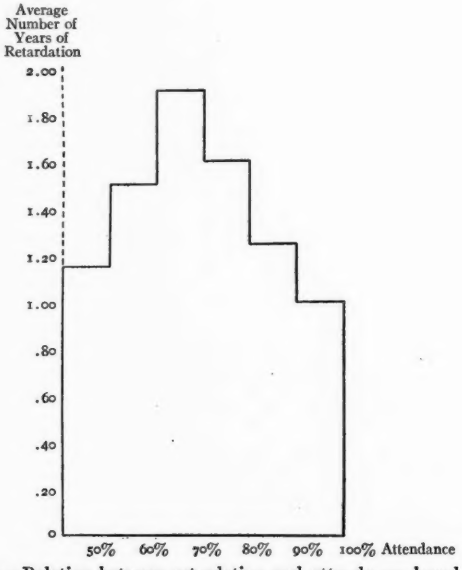

CHART 8.—Relation between retardation and attendance, based on number of years of retardation.

different percentages of attendance is calculated. In Chart 8 the curve shows a gradual uniform rise from 100 per cent of attendance back to 60 per cent. The decline from this point is accounted for as in Chart 7.

Tables IX, X, and XI show the relation between home conditions and retardation. In the letter combinations, the letter standing in the first place represents the financial conditions of the home; in the second place, the intellectual conditions of the home; in

TABLE IX

NUMBER OF CASES OF RETARDATION CONSIDERING HOME CONDITIONS

Grade	AAA		AAB		AAC		ABA		ABB		ABC		ACA		ACB		ACC	
	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded
1.....	2	0	1	0	0	0	3	0	4	0	0	0	0	0	0	0	0	0
2.....	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
3B.....	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
3A.....	0	0	0	0	0	0	4	0	2	1	0	0	0	0	0	0	0	0
4.....	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
5.....	1	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0
6.....	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
7.....	0	0	0	0	0	0	3	0	1	1	0	0	0	0	0	0	2	1
8.....	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0
Total.....	6	0	1	0	0	0	25	4	7	2	0	0	0	0	0	0	3	1
Percentage of retardation								16		29								33⅓

the third place, the moral conditions of the home; e.g., BCA would mean the home conditions of the pupils in question have been rated as follows: financially, B; intellectually, C; morally, A.

Twenty-seven combinations of home conditions are possible. For each of these is determined the number of pupils having such a combination of home conditions and the number of such pupils who are retarded. From these figures the percentage of retardation for each individual combination is calculated. In general, where there is a preponderance of A's and B's, the percentage of retardation is lower, while where there is a preponderance of B's and C's, the percentage of retardation is higher.

TABLE X

NUMBER OF CASES OF RETARDATION CONSIDERING HOME CONDITIONS

Grade	BAA		BAB		BAC		BBA		BBB		BBC		BCA		BCB		BCC	
	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded
1	1	0	0	0	0	0	15	7	8	2	2	0	3	3	6	4	6	2
2	0	0	0	0	0	0	5	1	2	0	0	0	1	0	2	0	0	0
3B	0	0	1	0	0	0	3	0	3	2	1	1	0	0	0	0	0	0
3A	1	0	0	0	0	0	9	3	2	0	1	0	0	0	0	0	0	0
4	1	0	0	0	0	0	13	1	1	0	1	1	0	0	3	2	0	0
5	1	1	0	0	0	0	5	3	10	4	0	0	0	0	5	4	0	0
6	3	0	0	0	0	0	8	3	1	0	0	0	0	0	1	1	2	2
7	1	0	0	0	0	0	7	3	2	1	3	2	2	1	2	2	1	0
8	0	0	0	0	0	0	4	3	3	1	0	0	1	1	1	1	1	0
Total	8	1	1	0	0	0	69	24	32	10	7	4	7	5	20	14	10	4
Percentage of retardation		12½						35		31¼		57		71½		70		40

TABLE XI

NUMBER OF CASES OF RETARDATION CONSIDERING HOME CONDITIONS

Grade	CAA		CAB		CAC		CBA		CBB		CBC		CCA		CCB		CCC	
	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded
1	0	0	0	0	0	0	0	0	2	1	2	0	1	1	17	11	22	16
2	0	0	0	0	0	0	2	0	3	1	1	1	0	0	17	10	10	9
3B	0	0	0	0	0	0	6	3	6	2	2	1	1	1	13	12	12	8
3A	0	0	0	0	0	0	0	0	8	4	2	2	0	0	12	12	10	5
4	0	0	1	0	0	0	3	1	6	1	0	0	0	0	8	8	23	19
5	0	0	1	0	0	0	0	0	4	3	0	0	0	0	13	13	8	8
6	0	0	0	0	0	0	2	2	3	0	4	3	3	2	0	0	6	4
7	0	0	0	0	0	0	4	3	1	1	0	0	0	0	7	4	6	6
8	0	0	0	0	0	0	0	0	3	2	0	0	2	2	2	2	3	3
Total	0	0	2	0	0	0	17	9	36	14	11	7	7	6	89	72	100	78
P'c't'ge of retardat'								53		39		64−		86−		89−		78

Following is a list of combinations of home conditions, giving in order the percentages of retardation. Those showing no retardation are omitted.

Financial	Educational	Moral	
B	A	A	12½
A	B	A	16
A	B	B	29
B	B	B	31¼
A	C	C	33⅓
B	B	A	35
C	B	B	39
B	C	C	40
C	B	A	53
B	B	C	57
C	B	C	64
B	C	B	70
B	C	A	71½
C	C	C	78
C	C	A	86
C	C	B	89

All percentages of retardation above 50 per cent accompany combinations in which B's or C's occupy first and second positions. Of the eight combinations giving percentages above 50 per cent, seven contain C in the middle or second position; five contain C in the first position. In the third positions are found 3 A's, 2 B's, and 3 C's. These observations would show that financial and intellectual conditions are larger factors in determining retardation than are moral conditions, and also, that intellectual conditions are the most prominent factors of all, while moral conditions seem to be least prominent.

These conclusions are more clearly shown from Table XII and the accompanying figure. The table shows an increase in retardation with the descending scale, A to B to C, in each of the three general classes—financial, educational, and moral.

The curves in Chart 12 give a graphical comparison of the whole field of retardation and home conditions considered in Table XII. Here we find the highest educational condition accompanied by the lowest percentage of retardation and the lowest educational condition accompanied by the highest percentage of retardation.

The reverse is true with moral conditions. The best moral conditions are accompanied by higher percentages of retardation than are the best financial and educational conditions, while the

TABLE XII

RETARDATION AND HOME CONDITIONS

GRADE	FINANCIAL						EDUCATIONAL						MORAL					
	A		B		C		A		B		C		A		B		C	
	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded	Total	Retarded
1	10	0	41	18	44	29	4	0	36	10	55	37	25	11	38	18	32	18
2	4	0	10	1	33	20	2	0	14	2	31	19	11	1	24	10	15	9
3B	1	0	8	3	40	27	1	0	22	9	26	21	11	4	23	16	15	10
3A	6	1	12	3	32	23	1	0	27	10	22	17	21	2	24	17	12	7
4	3	1	19	4	41	29	3	0	26	5	31	29	22	3	19	11	24	20
5	6	1	21	12	26	24	3	1	24	11	26	25	12	5	33	24	8	8
6	3	0	15	6	18	11	3	0	21	8	12	9	19	7	5	1	12	9
7	6	2	18	9	18	14	1	0	21	11	15	11	17	7	13	9	12	9
8	3	2	10	6	10	9	0	0	13	8	10	9	10	8	9	6	4	3
Total	42	7	154	62	262	186	18	1	204	74	228	177	148	48	188	112	134	93
Percentage of retardation		16⅔		42½		71		5⅝		36		77½		32½		59½		69†

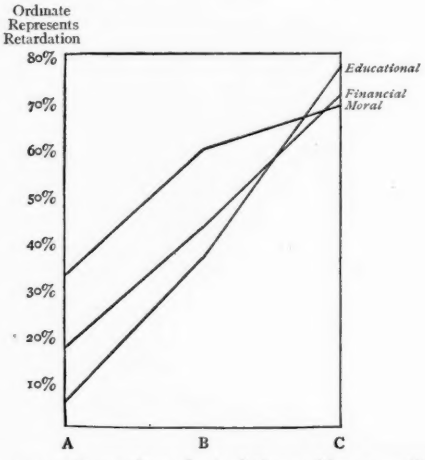

CHART 12.—Comparison of retardation and home conditions.

worst moral conditions are accompanied by a lower percentage of retardation than either the worst financial conditions or the worst intellectual conditions. At both extremes of the scale the curve

for financial conditions occupies a position between the other two curves.

In the order of accompanying percentages of retardation, home conditions may be arranged as follows:

A educationally..... $5\frac{5}{9}$ per cent retardation
A financially.....$16\frac{2}{3}$ per cent retardation
A morally.....$32\frac{1}{2}$ per cent retardation
B educationally.....36 per cent retardation
B financially.....$42\frac{1}{2}$ per cent retardation
B morally.....$59\frac{1}{2}$ per cent retardation
C morally.....69 per cent retardation
C financially.....71 per cent retardation
C educationally.....$77\frac{1}{2}$ per cent retardation

GENERAL CONCLUSIONS

1. Taking the mean of results obtained by Ayres's method of determining retardation by distribution of ages in grades, and the results obtained by studying individual cases, about 44 per cent of the pupils considered in this discussion have failed to complete one grade each year.

2. Most of the pupils who are retarded in the lower grades are eliminated before reaching the higher grades.

3. The fifth grade marks the point of greatest elimination.

4. In general, the average number of years a child spends in each grade varies inversely as his percentage of attendance.

5. If the financial, educational, and moral conditions of the home are rated in the descending order, A to C, the A conditions in each case are accompanied by the lowest percentages of retardation, while the C conditions are accompanied by the highest percentages of retardation.

Of these three, the educational condition constitutes the greatest factor, and the moral condition the least factor, in determining retardation.

AGRICULTURAL EDUCATION: STATE ORGANIZATIONS FOR AGRICULTURE AND FARMERS' INSTITUTES

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Perhaps no other offices concerned with the public business of various states include so wide a range of activities, duties, aims, and methods as do the state organizations for agriculture. One state commissioner of agriculture says of his department:

> If I were asked to supply a name, it would be called the Dumping Ground for a Legislature to place all subject-matter that body finds necessary to frame into law.

The justice of this observation will be more readily appreciated by reference to the following constitutional provisions for his office:

> He shall perform such duties in relation to agriculture as may be prescribed by law, shall have supervision of all matters pertaining to the public lands under regulations prescribed by law, and shall keep the Bureau of Immigration. He shall also have supervision of the State Prison, and shall perform such other duties as may be prescribed by law.

Some state organizations for agriculture have even a wider range of duties. On the other hand, there are some in which the duties of this office are limited to the supervision of the state agricultural college, or to the management of the state fair.

There are five forms of organization. The first includes those organizations known as "Departments" and consists of a commissioner and one or more assistants. The second form comprises the boards, which are composed of a varying number of members, some appointed by the governor and others being members of the board by virtue of their official position in the state. The third includes bureaus which are essentially the same as the boards. The fourth form is a combination of the first and second; the regular department is supervised by a board of agriculture. The fifth and final form is that known as the Michigan organization, under which

the state board of agriculture is merely a board of trustees for the state agricultural college (102, p. 328).[1]

In about half the states the administrative officer is chosen by popular vote; in the rest he is appointed by the governor or chosen by the members of the board. Being thus a political office in some instances, the position as secretary or commissioner of agriculture is more or less on a political basis, and therefore fails properly to fulfil the purpose for which it was intended, viz., to promote the agricultural interests of the state. It is the purpose of this article to sum up the work now being done by the various state departments, and by the state farmers' institutes in promoting agricultural education, particularly in elementary and secondary schools.

In one-half of the states the farmers' institutes are conducted under the direct or indirect control of the state organizations for agriculture; in the other half they are conducted by the state agricultural colleges. Since the methods and aims of all farmers' institutes are essentially the same in both groups, those under state supervision and those under state agricultural college supervision will be considered in the second part of this discussion. As might be expected, the attitude of the various state organizations for agriculture is favorable toward agricultural education in the public schools. In many reports of secretaries or commissioners of agriculture much emphasis is placed upon the importance of recognizing agriculture as a school subject. The following extract is typical:

> The Department has continued its efforts to impress upon the people of the state the importance and necessity of agricultural and industrial instruction in the public schools. These schools should fit for vocation. The population of this and other states is continually increasing, and in order for the farms to meet this increase there must be a more intelligent system of agriculture. This can best be brought about by teaching the principles of agriculture in the public schools. The farmer has a business to be studied and learned. It needs a trained mind as much as any other occupation. Let us educate our boys who are to be farmers of the future, for that work. Specific training of a practical kind is a necessity for the

[1] The references are to the bibliography at the end of this article or to bibliographies in other articles of this series.

coming occupants of our farms, as well as those engaged in mechanical industries. The most valuable asset of the state is her children. They should be trained to high ideals of every day living and to high efficiency in their respective vocations (103, p. 11).

At the annual meetings of boards of agriculture of several states agricultural education receives attention, special addresses being given on this subject and published in the proceedings (104, 105, 106, 107).

Special bulletins or leaflets are published and distributed by a few state offices of agriculture. The Massachusetts State Board of Agriculture has issued from time to time leaflets on elementary agriculture and nature-study. The New York State Department of Agriculture publishes annual reports of the state Experiment Station at Cornell University. These contain reprints of various nature-study, rural school, and teachers' leaflets sent out from Cornell University, and also accounts of the extension work in agriculture and nature-study conducted by the university among the schools of the state. The Missouri State Board has recently published a bulletin on elementary agriculture meant to be used "only as the first year's work," and "written on the supposition that neither teacher nor pupils know much of scientific agriculture" (108).

About half of the states hold annual state fairs under the management of the state offices of agriculture. In nearly all, there is a department of education in which prizes are offered for school exhibits. Some give special encouragement to agricultural subjects. The prizes aggregate a few dollars in some fairs to several hundred in others.

The Nebraska State Fair offered "to the Nebraska boy under eighteen years of age, growing the largest yield of corn from one acre of ground, in the year 1910, $50; second, $25; third, $20; fourth, $15; fifth, $10; and to the sixth, seventh, eighth, ninth, tenth, and eleventh, $5 each."

The South Dakota State Fair made the boys' and girls' contests a special feature at its recent meeting. Three hundred and fifty dollars were offered in cash prizes, the largest first

prize being one hundred dollars. The contest was announced in a special bulletin containing instructions as to the details of preparation for the contests (109).

One of the most popular buildings at the last Minnesota State Fair was the Agricultural Hall Annex which was devoted entirely to the exhibits in agriculture, household arts, and manual training of the ten high schools receiving state aid for teaching these subjects.

The Oklahoma State Fair of 1910 has arranged for a school of agriculture to be held on its grounds. Each county is entitled to two delegates, one hundred and fifty-four boys being provided for. "This work will be done at the fair grounds. The boys and instructors will sleep in a large tent." A portion of each day is to be devoted to instruction, lectures in the mornings and object-teaching or laboratory work in the afternoons (110). A similar school for boys is conducted by the Illinois State Fair.

Contests, for example, corn contests, are held in some states under the direction of the state office of agriculture. Such contests are being held in Missouri this year all over the state, and a Farm Boys' Encampment is conducted under the same management. In South Carolina contests have been held throughout the state under the joint direction of the State Department of Agriculture and the United States Demonstration Work. In the state contest which is soon to take place over three thousand boys are enrolled. The winner of last year's contest, Bascomb Usher, raised on one acre one hundred and fifty-two and one-half bushels of corn. The average production of corn per acre for the entire state was about eighteen bushels. A number of other southern states are conducting similar co-operative contests.

South Carolina, through its Department of Agriculture, has been aiding the practical teaching of agriculture in a few high schools by maintaining a skilled teacher and operating a farm and practice garden in connection with the school (111). The commissioner says:

> This has been in the nature of an experiment, but we have gone far enough in the matter to see that admirable results may be obtained, and

at a very minimum of cost. The only cost, in fact, to us is the salary of the man nine months in the year. The land is furnished by the patrons of the school, as are also the work animals, implements, fertilizers, etc., and the school is given the profits from the farm.[2]

These are typical examples of the work of various state offices of agriculture in promoting an interest in agriculture and rural life among boys and girls. Many others might have been given. It is a new field of activity for these offices, and promises much if organized and extended so as to co-operate with other educational efforts. Perhaps the greatest value of such work for agricultural education to the public schools lies in placing the stamp of official approval upon this kind of education.

In many states practically nothing has been done by these offices, and in none more than a beginning of what might be done. The state fair, for example offers unusual educational opportunities. If the same energy now expended in managing and controlling amusement-park features of these fairs (which are of doubtful value at best) were directed toward helping the schools of rural communities there might be a great educational gain for the state.

STATE FARMERS' INSTITUTES

The farmers' institute movement in the United States has now reached a degree of importance and development that places it along side of the leading institutions of the country organized in the interest of industrial education. Forty-five states and territories held institutes in 1905, aggregating 10,555 half-day sessions, which were attended by 995,192 persons, chiefly adults (112, p. 7).

The growth of this movement may be seen by comparing the above summary for 1905 with the following summary for 1908: number of institutes 4,643; half-day sessions 13,056; attendance 2,098,268. In addition to the regular institutes included in the above a number of special institutes were held with an attendance of 340,414, which, added to the attendance at the regular institutes, make a total of 2,438,682. There is

[2] Quoted from private letter.

no record of attendance of 732 meetings of women's institutes, of 174 meetings of boys' institutes, or of several other meetings which might be regarded as farmers' institutes (113).

> The function of the farmers' institute is to educate the people on their own ground. It is a phase of extension work that carries education directly to the localities in which the people live. It deals less with individual men on their farms than with small communities or groups of men; it therefore has the opportunity to exert great influence in developing the social life of rural neighborhoods (102, p. 462).

With these aims on the one hand, and with an attendance of over two million on the other, farmers' institutes become a factor in rural education second only to the public schools. Although the institutes are intended for adults it must be remembered that adults are patrons of the rural schools, and wherever the farmers' institute arouses the adult population to a realization of a need for better schools, improvement in these schools is likely to follow.

In 1896 the American Association of Farmers' Institute Workers was organized and has held annual meetings ever since. This association is a sort of clearing-house for exchange of ideas and methods, and is intended also to secure a more or less uniform type of institute in the several states. In 1898 the association requested the secretary of the Department of Agriculture at Washington to arrange for a division in connection with the department to be known as the Division of Farmers' Institutes. This request was subsequently granted by establishing the office of Farmers' Institute Specialist.[3]

The general policy of farmers' institutes is influenced greatly by the association and by the office of Farmers' Institute Specialist. At the meeting for 1908, the

> subjects for discussion in the general program were mainly directed toward defining the status of the farmers' institute in its relation to other forms of agricultural education. The points brought out were that the farmers' institute occupies the position of field agent for agricultural education; that it provides a most efficient channel for carrying agricultural information directly to the farmer who is unable to leave his occupation to go to school;

[3] The work of this office was referred to in the first article of this series, *Elementary School Teacher,* November, 1909, pp. 101–9.

and that it should broaden its work until it embraces other more advanced forms of educational work and extend its efforts until all rural people have full opportunity to enjoy its benefits (113, p. 293).

Farmers' institute workers are further assisted by state meetings where they gather together to plan the year's work. Here the policy for the work of the whole state is determined. In many of these meetings the relation of the institute to the public schools receives attention, and methods for assisting the introduction of agriculture and other rural-life subjects into the rural schools are discussed.

The following extracts of letters from some state directors or superintendents of farmers' institutes will indicate more definitely what these institutes are doing in this matter:

In connection with the Farmers' Demonstration Train we always send preliminary notice to the schools where the train is scheduled to stop, inviting them to have their pupils visit the train (Cal.).

At our annual conference of institute workers, the question of the relation of the school and church to the farm and rural life receives due consideration. The result is that an atmosphere favorable to the development of the schools along practical lines is pretty generally diffused (Ind.).

The farmers' institute lecturers have encouraged institute patrons to insist in their respective counties that agriculture be taught in the public schools (Md.).

Not only is this subject discussed by many of the lecturers, but at a large number of the institutes special speakers upon this and allied subjects are provided (Mich.).

For two years we have been giving lectures in agriculture and allied subjects in the high schools of the state; last year to the extent of eighty. Plans are nearly perfected for increasing this line of work the coming season, giving lecture courses consisting of four lectures in each of such schools as apply for them (Mont.).

We have several speakers who lecture before evening sessions of farmers' institutes on such subjects as: agriculture in the rural schools, domestic science in the rural schools, value of agricultural education, etc. (Neb.).

Each of the four corps of institute lecturers is accompanied by a representative of the Educational Department who arranges for special sessions in the public schools in connection with institutes where he can secure cooperation of the local school authorities. At these special sessions the farmers' institute lecturers give talks on elementary agriculture and nature-

study. The total attendance at these special sessions held during the school periods amounted to 22,697 (N.Y.).

When we are holding an institute in a town we very often send the lecturers to the schools to speak to the school children on certain phases of farm life (N.D.).

No instructions are given institute lecturers regarding this work; however, at many institutes teachers and pupils are called to the meeting and special lectures are given them (Okla.).

We are trying to give a good deal of attention to the introduction of agricultural education in the public schools. I have attended ten teachers' institutes during the summer with this object in view, speaking at some of them three times, and I think the subject has been discussed by some person in every institute in the state (S.D.).

Our farmers' institute instructors do what they can to promote and encourage the teaching of agriculture in the rural schools. Many of them have lectures upon this subject (W.Va.).

For the last twenty-four years a great deal of attention has been given to the discussion of agricultural education in the public schools of Wisconsin by the farmers' institute workers of this state; in fact, we feel that public sentiment among farmers has been developed by these discussions until Wisconsin has, we think, a little more practical agriculture in her schools, from the rural district up through the county agricultural schools and the agricultural college, than has any other state in the Union (Wis.).

In most states where the farmers' institute is conducted by the agricultural college there is a close correlation between this department and that of agricultural extension. In some colleges they are practically identical. As has been indicated in a previous article of this series special provision has been made by several colleges for extension work among the schools.[4] Where this arrangement obtains, the farmers' institute workers merely co-operate with those engaged in the work among the schools, and do not initiate any work themselves.

From what has been presented concerning the organization and work of the farmers' institutes it will be seen that they have been a considerable factor in the movement for agricultural education in the public schools, first, by arousing favorable sentiment among the farmers, and second, by direct help to teacher and pupils.

[4] *Elementary School Teacher*, February, 1910, pp. 277–86.

While these institutes will doubtless continue to encourage the introduction of agriculture into the public schools and emphasize the importance of re-directing rural schools, in many states, and soon in all the agricultural states, the demands of the rural schools for help along industrial lines will require some special attention not now provided.

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OUR INHERITED PRACTICE IN ELEMENTARY SCHOOLS

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V. PESTALOZZIAN OBJECT-TEACHING AND ORAL INSTRUCTION

This is the fifth of a series of articles intended to emphasize a method of teaching the history of education in which special attention is paid to educational practice in its relation to social conditions. This method can be illustrated to advantage in the work of Pestalozzi. The relation of this great reformer to general social movements can best be shown in connection with the Swiss Revolution of 1798 and with what might be called "Pestalozzian industrial training." His great influence on the actual practice of elementary schools can be illustrated in connection with "Pestalozzian object-teaching and oral instruction" and "Pestalozzian formalism." The former will be treated in this paper.

Pestalozzi protested vigorously against teaching children words and phrases that they did not understand, and insisted upon the substitution of real experience with natural objects as the fundamental starting-point of instruction. In this he was following Rousseau in "psychologizing instruction," and he himself considered it his most important reform. He said,

> If I look back and ask myself what I have really done toward the improvement of the methods of elementary instruction, I find that in recognizing observation as the absolute basis of all knowledge, I have established the first and most important principle of instruction.

We have seen how the influence of the Reformation and the invention of printing tended to make learning to read and memorizing the catechism the fundamentals in elementary education. Calling attention to this, Pestalozzi said,

> In Europe the culture of the people has ended by becoming an empty chattering, fatal alike to real faith and real knowledge; an instruction of

mere words and outward show, unsubstantial as a dream, and not only absolutely incapable of giving us the quiet wisdom of faith and love, but bound, sooner or later, to lead us into incredulity and superstition, egotism and hardness of heart. ... . . Everything confirms me in my opinion that the only way of escaping a civil, moral, and religious degradation, is to have done with the superficiality, narrowness and other errors of our popular instruction, and recognize sense impression as the real foundation of our knowledge.

If we study a few examples of object-teaching as they occurred in Pestalozzi's experience we will get a concrete notion of what he meant by the "necessity of basing instruction on sense perception" and will see the relation to arithmetic, language, geography, and other studies.

In the *Journal* in which he described the education of his own child in 1774 he said,

I tried to make him understand the meaning of numbers. At present he knows only their names without attaching any precise meaning to them. The child has been in the habit of associating no difference of meaning with the various names of numbers he pronounces. . . . . Why have I been so foolish as to let him pronounce important words without taking care at the same time to give him a clear idea of their meaning?

In *Leonard and Gertrude* (1781) we get examples of how he followed up this theory with the spinning children at Neuhof.

The instruction [Gertrude] gave them in the rudiments of arithmetic was intimately connected with the realities of life. She taught them to count the number of steps from one end of the room to the other, and two of the rows of five panes each, in one of the windows, gave her an opportunity to unfold the decimal relations of numbers. She also made them count their threads while spinning, and the number of turns on the reel, when they wound the yarn into skeins. Above all, in every occupation of life she taught them an accurate and intelligent observation of common objects and the forces of nature.

From the third class that Pestalozzi taught at Burgdorf (1800) we have one of the clearest examples of his object-teaching. One of his pupils there wrote,

The language exercises were the best thing we had, especially those on the wall-paper of the school room, which were real practice in sense impression. We spent hours before this old and torn paper, occupied in examining the number, form, position, and color of the different designs, holes, and rents, and expressing our ideas in more and more enlarged

sentences. Thus he would ask: "Boys, what do you see?" (He never addressed the girls.)

Answer: "A hole in the paper."
Pestalozzi: "Very well, say after me:
"I see a hole in the paper.
"I see a long hole in the paper.
"Through the hole I see the wall.
"Through the long narrow hole I see the wall.
"I see figures on the paper.
"I see black figures on the paper.
"I see round black figures on the paper.
"I see a square yellow figure on the paper.
"By the side of the square yellow figure I see a round black one.
"The square figure is joined to the round figure by a large black stripe, etc."

At Burgdorf natural history materials, chiefly minerals and plants, were collected by the children on their walks, and examined and described, but the teachers were ignorant of any scientific classifications.

From Yverdon (1805) we have a good example of a sense-perception geography lesson, as described by a pupil.

The first elements of geography were taught us from the land itself. We were first taken to a narrow valley not far from Yverdon, where the river Buron runs. After taking a general view of the valley, we were made to examine the details, until we had obtained an exact and complete idea of it. We were then told to take some of the clay which lay in beds on one side of the valley, and fill the baskets which we had brought for the purpose. On our return to the Castle, we took our places at the long tables, and reproduced in relief the valley we had just studied, each one doing the part that had been allotted to him. In the course of the next few days more walks and more explorations, each day on higher ground, and each time with a further extension of our work. Only when our relief was finished were we shown the map, which by this means we did not see until we were in a position to understand it.

These examples are representative of the methods of sense-perception or object-teaching used by Pestalozzi in various stages of his experimentation.

Object-teaching and oral speech.—The primary purpose in teaching through observation and real experience was to have the children get real and clear ideas instead of mere words or

hazy notions. This led to a subordination or elimination of book study which had two important effects on practice: (1) the teacher became an active instructor of groups of children, instead of a hearer of individual recitation; (2) children were given training in oral speech which had practically no place in the elementary schools before.

We have seen (in an earlier article) how the Christian Brethren and the Lancasterian schools substituted group recitations for individual recitations, but with them teaching continued to be primarily hearing children recite from books. With oral instruction based on object-teaching the schoolroom activity took on an entirely different character. In the first place a single objective center of attention usually became the center of interest, such as the hole in the wall paper at Burgdorf or the valley at Yverdon. In connection with some such center of attention, e.g., in studying beans, the teacher raised questions intended to set the children to thinking actively for the answer to a problem which they felt in common, such as "How many beans are on the table?" "What is the color of the beans?" In the absence of books, any information which the children did not possess or could not discover had to be given by the teacher, hence the teacher's knowledge of the objective world became important. This change in the emphasis from "what the book said," to what the children had experienced or were experiencing and what the teacher knew, led to an elaborate development of the technique of instruction during the nineteenth century. The teacher was now confronted with such questions as, What objective experiences to select for children? How arrange to give them these experiences? How keep children actively attentive and thinking about the object? What kind of questions to ask in order to bring out unnoticed characteristics? How systematize and arrange the child's experiences and ideas? How provide for repetition and fixing them since simply rereading in a book was no longer possible? How much should the children be told, how much should they discover themselves? In telling them, what form of expression should be used?

These oral methods assumed two extreme forms: (1) the teacher simply questioned the children about their experience and told them nothing; (2) the teacher told them everything, his words being substituted for those of the textbook. The evil consequence of both these extremes was that children did not learn how to use books, which Pestalozzi sanctioned by his statement that he had not read a book for years. The influence of these extremes on the training of teachers is important. With the extreme of all questioning, it was assumed that the teacher's knowledge was unimportant, a proper method of questioning being the sole requisite. Inasmuch as some people are naturally good questioners, it was assumed that they were skilled teachers. This was especially characteristic of the early work of Pestalozzi and his assistant Krusi, who through ignorance could only question children about holes in the wall paper, or have them describe natural objects. The extreme of lecturing by the teacher tended to emphasize the teacher's knowledge, and made for the development of academic subject-matter in courses for training teachers.

With Pestalozzi himself, oral instruction usually took the form of concert recitation, the children repeating after him a series of statements. This was perhaps the poorest form that the oral instruction assumed, inasmuch as it involved neither useful knowledge in the teacher nor active thought by the children, but merely imitative shouting.

The second large influence of oral objective teaching was to give children training in oral speech, sometimes oral composition. In *Leonard and Gertrude,* the latter was in no haste for the children to "learn to read and write. But she took pains to teach them early how to speak; for, as she said, 'Of what use is it for a person to know how to read and write, if he cannot speak? since reading and writing are only an artificial sort of speech.'" Thus the aim of teaching children to speak was an important element in Pestalozzian object-teaching. While there were many crudities in Pestalozzi's methods of language training, the following valuable points characterized the methods as developed by his more intelligent followers: (1) the

child should have clear ideas to be expressed, these to be based on real experiences; (2) his vocabulary should be systematically enlarged in expressing these ideas; (3) he should be trained to keep in mind an increasing series of ideas and express them in order.

Good examples of this training in expression based on observation are to be found in the reports on Prussian Pestalozzian schools. In that of Calvin E. Stowe (1839) a number of concrete cases are given in the form of descriptions of lessons which he observed in his travels in Prussia. One of these descriptions concerning children from six to eight years of age stated that,

> for six months or a year, the children are taught to study things, to use their own powers of observation, and speak with readiness and accuracy, before books are put into their hands at all. A few specimens will make the nature and utility of this mode of teaching obvious.
>
> In a school in Berlin, a boy has assigned him for a lesson a description of the remarkable objects in certain directions from the school house, which is situated in Little Cathedral street. He proceeds as follows:
>
> When I come out of the school-house into Little Cathedral street, and turn to the right, I soon pass on my left hand the Maria Place, the Gymnasium and the Anklam Gate. When I come out of Little Cathedral street, etc.

Horace Mann also described such lessons as he had observed them in Prussia and commented on their value for training in speaking, at the same time contrasting with them in a very unfavorable light the mechanical methods which prevailed in American schools. He said,

> Again, the method I have described necessarily leads to conversation, and conversation with an intelligent teacher secures several important objects. It communicates information. It brightens ideas before only dimly apprehended. It addresses itself to the various faculties of the mind, so that no one of them ever tires or is cloyed. It teaches the child to use language, to frame sentences, to select words which convey his whole meaning, to avoid those which convey either more or less than he intends to express; in fine, it teaches him to seek for thoughts upon a subject, and then to find appropriate language in which to clothe them.

An American example of these Pestalozzian objective-language methods, taken from the *Oswego Methods* of 1862, is the following for children 9 to 10 years of age:

The children were to give any term which may be used in describing a face, and the teacher wrote them on the board as mentioned. They gave *pretty, homely, white, rosy, freckled, wrinkled, blushing, happy, bashful, sad, pale, cheerful, thin, sorrowful, sour, ugly.*

When a sufficient number of words had been written upon the board, the teacher called up a pupil to mark each word that may be used to describe one face. The first pupil marked words making the following description: "Happy, thin, wrinkled, pleasant, pale, pretty, white, cheerful face," etc.

Transition from systematic object-teaching to natural science.—The object-teaching described so far has been of a rather informal nature, the teacher utilizing the common objects in the children's immediate environment to enlarge their knowledge and train them in a command of language. In some cases, however, the object-teaching was highly systematized and collections of materials used in physics, chemistry, mineralogy, botany, and zoölogy were placed before the children, who were required to learn to describe them in scientific terms. This was characteristic of the Oswego lessons as described by the investigating committee in 1862. Systematic training for children from 6 to 8 was provided in assorting and naming the colors of yarns and colored cards. In the next highest class (9-10) children were taught the scientific nomenclature of colors, to classify them as primary, secondary, and tertiary. Older children were taught the sensory qualities of certain chemicals as in the following lesson intended to teach children to distinguish acids from alkalies.

A class of boys and girls were arranged upon the stage so that they could observe the vials of liquids and solids upon the table in the center. . . . . The children were each given some cream of tartar to taste; they pronounced the taste *sour.* The name of the substance was written on the blackboard. Then they were given some sal soda to taste, and they said it tasted "bitter and burning." The name of this was written on another part of the board. The teacher then told the children that we called those substances which taste sour *acids,* and wrote the word *acids* over cream of tartar. She then told them that the name for those substances which

have a "bitter, burning taste," is *alkalies*. This word was written over sal soda. Then the children were given some vinegar to taste, etc.

These Oswego examples were considered by some as lessons in elementary science because they used some of the materials of the natural sciences and introduced their nomenclature and classifications. But the phrase "object-teaching" was the name by which this work was ordinarily known, the phrase "nature-study" coming into general use later.

As a consequence of the general attention attracted by the Oswego experiment, "object-teaching" became the great topic of discussion at teachers' meetings during the sixties. The *Proceedings of the National Teachers' Association* for this decade show the same interest in object-teaching as is manifested today in industrial education or variation of instruction to meet individual needs. The consideration of oral instruction was generally linked with object-teaching and the values and dangers of the various methods of oral instruction were argued pro and con.

The transition from object-teaching to elementary science or nature-study, taught by oral methods, appears clearly in the development of the curriculum in the St. Louis schools about 1870. William T. Harris, later United States Commissioner of Education, was then superintendent in St. Louis, and his reports contain complete statements of the character and justification of his innovations. While a conservative innovator, Superintendent Harris was thoroughly in touch with European educational thought and practice. and under his management the St. Louis schools proved the practical possibilities and values of many innovations which other cities introduced many years later.

The transition mentioned above was concisely stated by Superintendent Harris in his report for 1870-71 as follows:

> For several years "object lessons" have been used to some extent by our teachers. Last year oral lessons in physiology were given in all the grades. Upon the adoption of the course of study in Natural Science these lessons have been confined to the hour given to that course and brought in as one of the means of giving zest and interest.

Mr. Harris said that in previous reports he had argued at length for the fundamental subjects, reading, writing, arith-

metic, and geography as more important than any of the new "special subjects" demanding admission to the curriculum, but that this year he had to report and justify the introduction of natural science. The social justification stated was "the importance of natural science as furnishing the theoretical basis of productive industry and the consequent elevation of the masses of all the people by means of the wealth created thereby."

The difference between "object-teaching" and "natural science" seemed to be in the degree of classification. Science was conceived "as completely classified knowledge," hence the important thing in instruction was to see that the children learned the classifications. The "syllabus of lessons in natural science" was most formidable, embracing almost everything in "nature inorganic"—mathematics, physics, chemistry, astronomy; and "nature organic"—botany, zoölogy, physiology. The technical phrases of these sciences were to be introduced, though not so rapidly as to burden the pupils. Good "types" or representative examples of the general classes were to be studied. The objective method was ordered in these words:

> Every lesson should be given in such a way as to draw out the perceptive powers of the pupil by leading him to reflect on what he sees or to analyse the object before him. It is at first thought strange—although it is true—that powers of observation are to be strengthened only by teaching the pupil to *think* upon what he sees.

Analysis, classification, and cause and effect were emphasized.

The values of oral instruction not only for the pupil but also in developing the teacher were emphasized by Mr. Harris. He said,

> It seems to me this phase of the subject—its value to the teacher—is worth quite as much as the immediate value of these lessons to the pupil. . . . . The teacher is led to study and thoroughly prepare herself, and then in [the] lesson, she is led to probe in a freer manner than ordinary, the miscellaneous fund of experience possessed by the individuals of her class; thus she cannot fail to find herself getting more and more emancipated from the slavish use of the text book and able to stand before her class with a consciousness of her strength and ability to draw out the resources of each and all her pupils and combine the same into one result.

The extensive influence of Pestalozzian objective teaching on oral instruction and the study of natural objects has been shown

by this brief discussion. The influence on the teaching of geography was described in recent numbers of the *Elementary School Teacher*. The influence on the teaching of arithmetic was probably greater than on any other subject, resulting in the great vogue of "mental" or "intellectual arithmetic" in the nineteenth century. This was the first phase of Pestalozzianism to secure a strong hold on American schools, through the general adoption of Warren Colburn's *First Lessons* published in 1821. Nearly all of the important improvements in American elementary-school methods between 1820 and 1870 were Pestalozzian in their origin.

EDITORIAL NOTES

The paper which Mr. Johnson published in the October number of the *Elementary School Teacher* has attracted the attention of many school superintendents. Material of the type which Mr. Johnson there brought together exists in the records of every school system. This material needs only to be promulgated in tables and graphs to become a very important factor in the supervision of the school system.

Every supervisor recognizes the necessity of defending his judgments of the efficiency or inefficiency of a school or teacher by facts which cannot be treated as purely matters of opinion.

When it is shown that a student in an elementary school has been prepared to carry on efficiently the work of a higher school there is no longer ground for argument with regard to the efficiency of the lower school, at least within that sphere of its activity.

When, on the other hand, a school does not qualify its students to go forward with their later studies, there must be some defect in the lower school which ought to be remedied. Mr. Johnson's article is an example which undoubtedly will be widely imitated by supervisors who are preparing to subject their systems to a careful study.

There may be at first a prejudice against the kind of comparison which is there illustrated. Teachers are sometimes afraid to have their work subjected to this kind of study. It will very shortly be seen, even by those who are now timid and skeptical, that such a frank and objective statement of results is of very great advantage even to the teacher or school which is subjected to adverse criticism as a result of the investigation.

It is possible to correct faults only when these faults are clearly recognized. When one has no means of comparing the work which he does day by day with the work done by others engaged in the same type of educational work, there is

likely to be a great deal of indefiniteness in the standards set up. This indefiniteness of standard leads to a great variety of unfortunate consequences. The teacher is uncertain even though she may do good work. Some investigation of the type illustrated in Mr. Johnson's paper would relieve the uncertainty of such a situation. On the other hand, it would stimulate many a teacher, who is not aware of defects, to improve and eliminate these defects.

A second very great virtue of such investigations is that they leave behind a permanent record which records in writing the history of any school or any school system.

A new official coming to a school system usually goes through a period of readjustment on his own part and on the part of the schools, which is very expensive to the system as a whole. He finds it impossible to compare a school which he is disposed to criticize, with its own history, since he has no statement of this history. He is very likely, therefore, to make the mistake of attempting to reform a school which is at the present moment on the road to improvement.

He has, on the other hand, no means of determining when a school is gradually deteriorating. The biologists long ago learned the lesson that exact measurements and records form the only means of studying changes in animal organisms. All groups of animals are gradually modifying their characteristics, and we overlook these changes because we do not have some record of the immediately preceding generation. The biologists have, therefore, begun to take careful measurements of each succeeding generation for the purpose of detecting changes. When they find a progressive change going forward, they have one of the most important facts in their science. We should have the same kind of material in education. A school which is bad in its discipline, but is rapidly improving, is, on the whole, in much better condition than a school which is fairly good in its discipline, but is gradually deteriorating.

Finally, objective material of this type, if clearly presented, would answer many of the criticisms made by business men and others who are at the present time very doubtful with regard

to the efficiency of our schools. One of the reasons why the school work of the present day is regarded by laymen as inefficient is to be found in the fact that there is no measurement of the efficiency of this work. When an opinion gains circulation that a certain school is efficient or inefficient, that opinion cannot be met by educators with any facts which would either sustain or overthrow the opinion. The best that the educational expert can do in most cases is to assert his own opinion, and reiterate this opinion in opposition to the criticism of the community. An exchange of opinions of this sort between educational experts and the community aways results in the defeat of the single expert. If, on the other hand, the expert could present facts which would appeal to the community and would make clear the efficiency of the school, without reference to his own opinions, support for the schools and respect for their work would increase in very large measure.

BOOK REVIEWS

The Body and Its Defences. By LUTHER HALSEY GULICK AND FRANCES GULICK JEWETT. Boston: Ginn & Co., 1910. Pp. vii+342. 65 cents.

The Gulick Hygiene Series has been opportune and effective in giving a wholesome turn to this aspect of elementary school work. The two-book series is now completed with the subject of this review. This book is elementary physiology and hygiene combined, but combined in such a way that both are constantly presented. The ordinary topics of the physiologies—bones, muscles, circulation, etc.—are fully treated, but their structure and proper use are constantly made parts of the same discussion.

Photographic illustrations and text examples, both abundant in number, are taken largely from the activities of the home, playground, and industries in which boys and girls are interested. Almost all the text cuts are free from the mass of confusing details sometimes found in elementary physiologies.

The text is direct and simple. Terms that may be new to children are given in a glossary and key to pronunciation. The anecdote method of discussion is used so constantly that the book is well calculated to prove an interesting reader for the pupil.

Effects of alcohol upon the various parts of the body receive attention out of all proportion to that given to other related injurious substances. This doubtless is done in order to meet certain uneducational though worthily conceived laws which relate to this one phase of temperance education. With the statutes as they are in some of the states, probably this phase of the book necessarily is what it is, and it should be said that no one has handled the subject in a better way.

The book and the others of the two sets constitute an excellent series and if faithfully used should help greatly in raising the efficiency of a subject which has often fallen short of its possibilities. O. W. C.

CURRENT EDUCATIONAL LITERATURE IN THE PERIODICALS[1]

IRENE WARREN
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COOK, JOHN W. History of Education (2). School and Home Educa. 30: 9–13. (S. '10.)

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[1] *Abbreviations.*—Educa., Education; Educa. R., Educational Review; El. School T., Elementary School Teacher; Journ. of Educa., Journal of Education; Journ. of Educa. Psychol., Journal of Educational Psychology; Kind. R., Kindergarten Review; Lib. Journ., Library Journal; Lit. Digest, Literary Digest; Nat. Study R., Nature Study Review; R. of Rs., Review of Reviews; School and Home Educa., School and Home Education; School R., School Review; School W., School World; Sci. Amer., Scientific American.